

Application No. 10/645,349
Reply to Office Action of April 14, 2006

REMARKS / ARGUMENTS

The present application includes pending claims 1-33, of which claims 1, 5-10, 14, 15, 17, 19, 20 and 24-28 have been rejected. Claims 2-4, 11-13, 16, 18 and 21-23 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Claims 29-33 have been allowed. The Applicants respectfully submit that the claims define patentable subject matter.

Initially, the Applicants note that a goal of patent examination is to provide a prompt and complete examination of a patent application.

It is essential that patent applicants obtain a prompt yet complete examination of their applications. Under the principles of compact prosecution, each claim should be reviewed for compliance with every statutory requirement for patentability in the *initial review* of the application, even if one or more claims are found to be deficient with respect to some statutory requirement. Thus, Office personnel *should* state *all* reasons and bases for rejecting claims in the *first* Office action. Deficiencies should be explained clearly, particularly when they serve as a basis for a rejection. Whenever practicable, Office personnel should indicate how rejections may be overcome and how problems may be resolved. A failure to follow this approach can lead to unnecessary delays in the prosecution of the application.

Manual of Patent Examining Procedure (MPEP) § 2106(II). As such, the Applicants assume, based on the goals of patent examination noted above, that the present Office Action has set forth "all reasons and bases" for rejecting the claims.

Claims 1, 6-9, 20, and 24-28 stand rejected under 35 U.S.C. § 102(e) as being anticipated by US Patent No. 6,989,789, issued to Ferreol, et al. (hereinafter, Ferreol). Claims 10, 14-15, 17, and 19 stand rejected under 35 U.S.C. § 102(e) as being anticipated by US Patent No. 6,380,884, issued to Satou, et al. (hereinafter, Satou). Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ferreol. The Applicants respectfully traverse these

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rejections at least for the reasons previously set forth during prosecution and the following remarks:

I. Ferreol Does Not Anticipate Claims 1, 6-9, 20 and 24-28

The Applicants first turn to the rejection of claims 1, 6-9, 20, and 24-28 under 35 U.S.C. 102(e) as being anticipated by Ferreol. With regard to the anticipation rejections under 102(b), MPEP 2131 states that "[a] claim is anticipated only if **each and every element** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." See Manual of Patent Examining Procedure (MPEP) at 2131 (internal citation omitted). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See *id.* (internal citation omitted).

Ferreol discloses a process for locating radio sources by a two-channel high-resolution radiogoniometer (a radio direction-finding apparatus) including a network of specified number N of sensors. See Ferreol at Abstract.

A. Rejection of Independent Claims 1 and 20 under 35 U.S.C. § 102(e)

With regard to the rejection of independent claim 1 under Ferreol, the Applicants submit that Ferreol does not disclose or suggest at least the limitation of "generating, as a function of the responses of the M physical antenna elements to the signal, N responses to the signal, respectively associated with N spatial locations along the antenna array, wherein at least one of the N spatial locations is not coincident with a location of any of the M physical antenna elements and is placed at a non-equidistant location between two successive physical antenna elements," as claimed by the Applicants in independent claim 1.

Ferreol discloses a process for locating radio sources using a network of N sensors coupled to a calculation device by way of N receivers to estimate the angles of incidence of the radio waves transmitted by various sources and

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received on the network. See Ferreol, col. 1, lines 8-19. To determine the angles of incidence, Ferreol discloses a maximum likelihood type algorithm and a temporal MUSIC type algorithm. See Ferreol, col 4, lines 23-60 and col. 6, lines 11-51. The goniometry processing disclosed by Ferreol consists in successively **performing cross-correlations between several pairs of sensors indexed by i and j, where the switching between each pair (i; j) of the existing network sensors is performed by the switch 4.** See Ferreol, col. 9, lines 31-37 and col. 10, lines 16-23.

The Office Action refers for support to Ferreol, col. 12, lines 18-22, "stars" and "squares" of Figure 21 of Ferreol. See the Office Action, page 3. Ferreol discloses:

By using a traditional pentagonal network the switching onto the small bases consists in taking $I=[1\ 2\ 3\ 4\ 5]$ and $J=[2\ 3\ 4\ 5\ 1]$ and large bases $I=[1\ 2\ 3\ 4\ 5]$ and $J=[3\ 4\ 5\ 1\ 2]$.

See Ferrel, col. 12, lines 14-17. Referring to Figure 20 of Ferreol, Ferreol discloses that the switch 4 may perform the above-stated switchings among the existing sensors (sensor 1 through sensor 5) onto small bases or large basis. For example, as illustrated in Figure 20, small bases sensors may be switched by taking measurements for the following pairs of sensors ($I=1, J=2$), ($I=2, J=3$), ...($I=5, J=1$). Since Ferreol discloses a pentagonal network of dipoles connecting the sensors (See Ferreol, col. 8, lines 39-52), measurement for the pairs of sensors is taken for a dipole connecting the corresponding sensors. This can be easily seen in Figure 20 of Ferreol, where for small bases sensors, sensor 1 is connected to sensor 2, sensor 2 is connected to sensor 3, etc. Similarly, as illustrated in Figure 20 of Ferreol and as stated above, large bases sensors may be switched by taking measurements for the following pairs of sensors ($I=1, J=3$), ($I=2, J=4$), ...($I=5, J=2$). This can be easily seen in Figure 20 of Ferreol, where for large bases sensors, sensor 1 is connected to sensor 3, sensor 2 is connected to sensor 4, sensor 3 is connected to sensor 5, sensor 4 is connected to sensor 1,

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and sensor 5 is connected to sensor 2.

Consequently, the Applicants submit that **Ferreol discloses only using the pentagonal network of physical sensors 1 through 5 to effectuate two different types of switchings performed by the switch 4.** In this regard, Ferreol discloses determining two different sets of sensor measurements using the existing sensors, as illustrated by the "stars" and "squares" in Figure 21 of Ferreol, and using the switchings for locating radioelectric sources. The Applicants submit that Ferreol clearly does not disclose or suggest "generating, as a function of the responses of the M physical antenna elements to the signal, **N responses to the signal, respectively associated with N spatial locations along the antenna array,**" as recited by the Applicants in claim 1. Accordingly, independent claim 1 is not anticipated by Ferreol and is allowable.

Independent claim 20 is similar in many respects to the method disclosed in independent claim 1. Therefore, the Applicants submit that independent claim 20 is also allowable over the references cited in the Office Action at least for the reasons stated above with regard to claim 1.

B. Rejection of Dependent Claims 6-9 and 24-28

Based on at least the foregoing, the Applicants believe the rejection of independent claims 1 and 20 under 35 U.S.C. § 102(e) as being anticipated by Ferreol has been overcome and request that the rejection be withdrawn. Additionally, claims 6-9 and 24-28 depend from independent claims 1 and 20 and are, consequently, also respectfully submitted to be allowable. The Applicants also reserve the right to argue additional reasons beyond those set forth above to support the allowability of claims 1, 6-9, 20, and 24-28.

II. Satou Does Not Anticipate Claims 10, 14-15, 17, and 19

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The Applicants next turn to the rejection of claims 10, 14-15, 17, and 19 under 35 U.S.C. 102(e) as being anticipated by Satou. With regard to the anticipation rejections under 102(b), MPEP 2131 states that "[a] claim is anticipated only if **each and every element** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." See Manual of Patent Examining Procedure (MPEP) at 2131 (internal citation omitted). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See *Id.* (internal citation omitted).

Satou discloses a radar apparatus that can correctly extract the necessary point for a determination related to the safe travel of one's automotive vehicle among objects such as automotive vehicles moving at an angle in front and constructed objects. See Satou at Abstract.

A. Rejection of Independent Claim 10 under 35 U.S.C. § 102(e)

With regard to the rejection of independent claim 10 under Satou, the Applicants submit that Satou does not disclose or suggest at least the limitation of "wherein the array processing module is configured to generate N signal response values for the antenna array as a function of the M replicas of the received signal; wherein the N signal response values *include at least one virtual antenna response value*, wherein N is greater than M," as claimed by the Applicants in independent claim 10. The Office Action refers for support to elements B1 to B9 in Figure 9 of Satou. See the Office Action, page 4. The Applicants would like to point out to the Examiner that **elements B1 to B9 are only graphic representation of beams** transmitted from the antennas A1 to A5. See Satou, col. 4, lines 27-41. Therefore, the Applicants submit that Satou does not disclose an array processing module configured to generate N signal response values for the antenna array as a function of M replicas of the received signal, where the N signal response values include at least one virtual antenna response value, and where N is greater than M, as recited by the Applicants in claim 10. Accordingly, independent claim 10 is not anticipated by Satou and is allowable.

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B. Rejection of Dependent Claims 14-15, 17, and 19

Based on at least the foregoing, the Applicants believe the rejection of independent claim 10 under 35 U.S.C. § 102(e) as being anticipated by Satou has been overcome and request that the rejection be withdrawn. Additionally, claims 14-15, 17, and 19 depend from independent claims 10 and are, consequently, also respectfully submitted to be allowable. The Applicants also reserve the right to argue additional reasons beyond those set forth above to support the allowability of claims 10, 14-15, 17, and 19.

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CONCLUSION

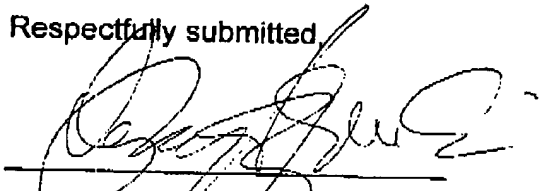
Based on the foregoing, the Applicants believe that all claims 1-33 are in condition for allowance. If the Examiner disagrees, the Applicants respectfully request a telephone interview, and request that the Examiner telephone the undersigned Attorney at (312) 775-8176.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowability is courteously solicited.

Date: 01-MAY-2006

Respectfully submitted,



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